DRAWING MARKUP

#25

WORD LINE

24 28 29 32'

32

16 16 BIT LINE

14 14 DRAIN

N N

12 12 CHANNEL

P 11 P

N N SOURCE

10 20 22 24 22' 18 20'

FIG. 5

WORD LINE

28 40 42

13

E=0.6μ

C=0.6μ A=0.6μ

D=0.05

B=0.6μ

14

48 BIT LINE 30 40 50

FIG. 6

OX/NIT.
NMOS
↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ 68
78
P
66

FIG. 10A

EEPROM CELL   PHOTORESIST
↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ 68
N
64

FIG. 10B

74 PMOS
↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ 76
68
N
62

FIG. 10C

80   68   80
78
P
66

FIG. 11A

OX/NIT.
68
N
64

FIG. 11B

80   68   80
N
62

FIG. 11C

↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓
80 68 69 80
P
66

FIG. 12A

↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓
N
64

FIG. 12B

PHOTORESIST   N&P
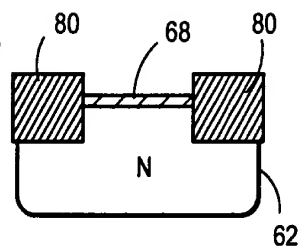IMPLANTS
↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓
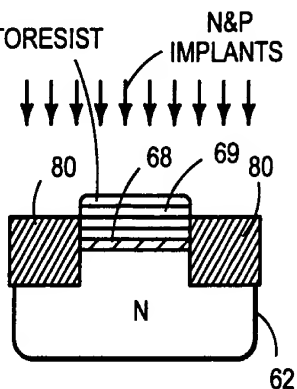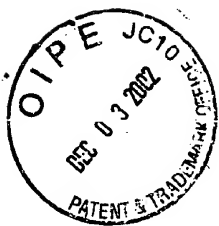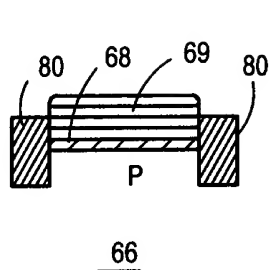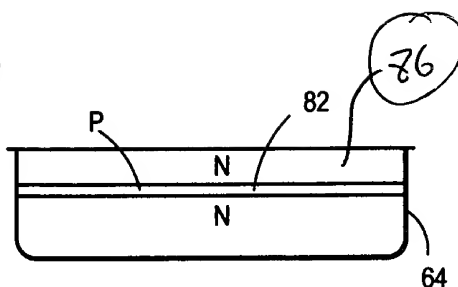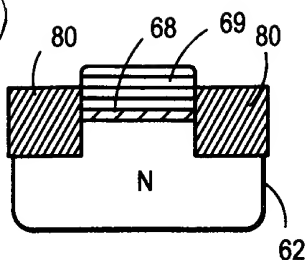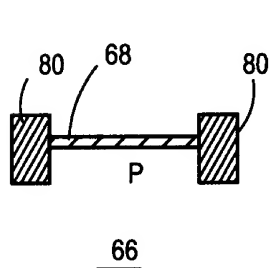80 68 69 80
N
62

FIG. 12C
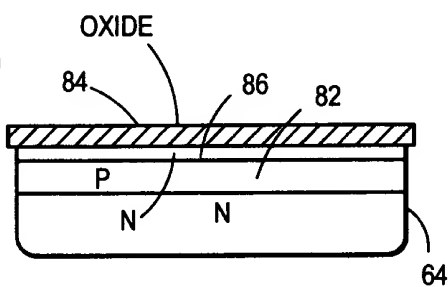
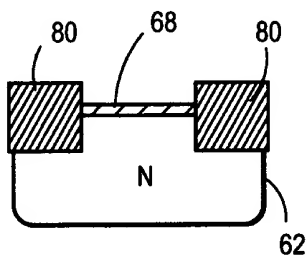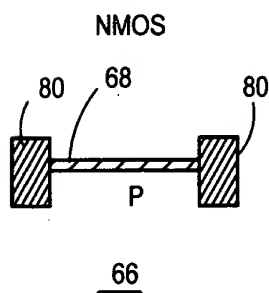FIG. 13A   FIG. 13B   FIG. 13C

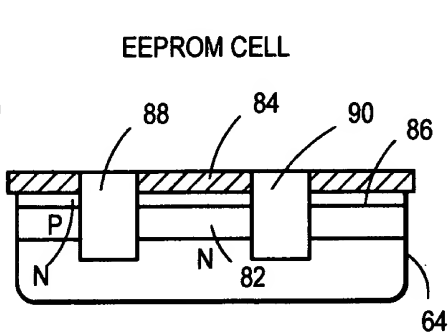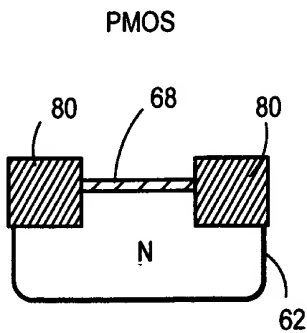FIG. 14A   FIG. 14B   FIG. 14C

FIG. 15A   FIG. 15B   FIG. 15C
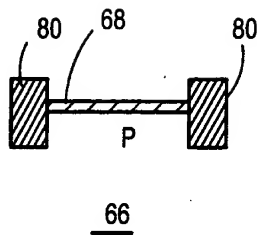
FIG. 19A   FIG. 19B   FIG. 19C

NMOS   EEPROM CELL   PMOS

OXIDE

POLY1
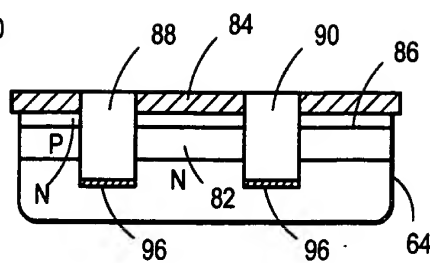
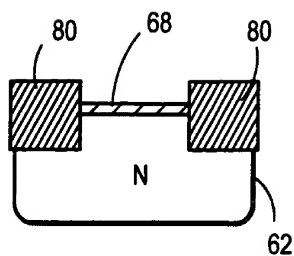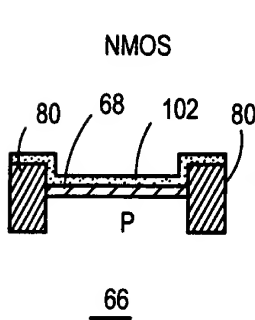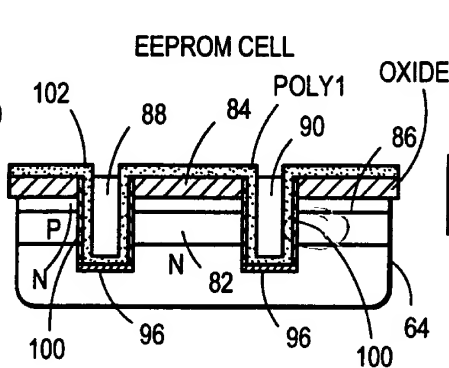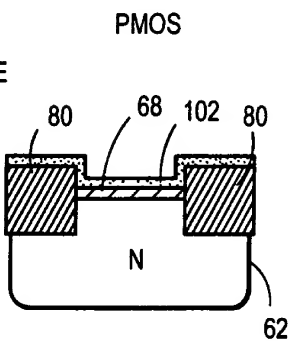FIG. 20A   FIG. 20B   FIG. 20C
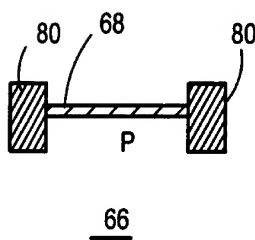
FIG. 21A   FIG. 21B   FIG. 21C
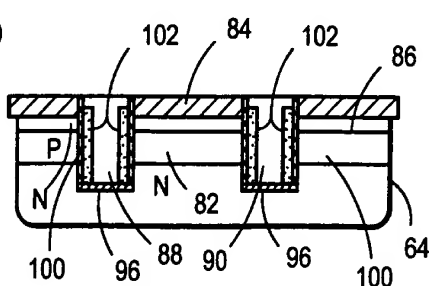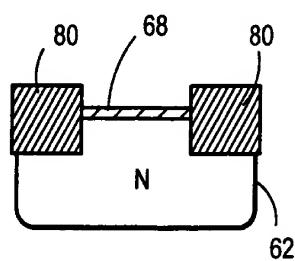
MARKUPS
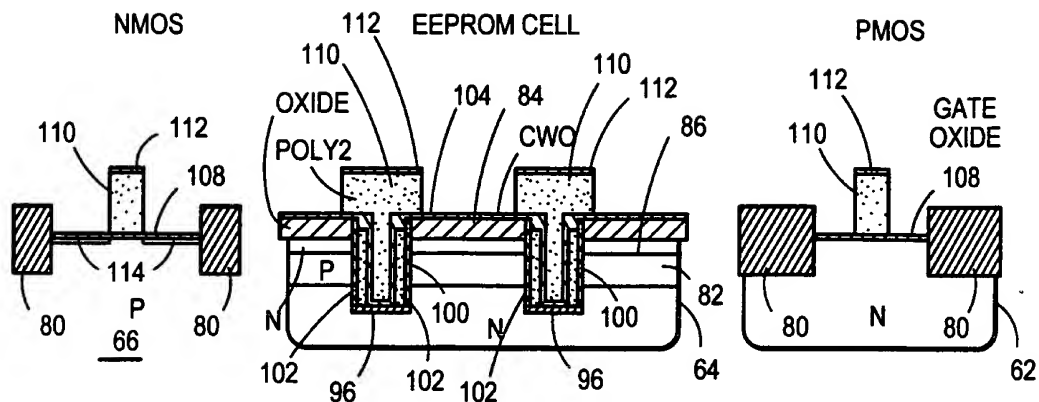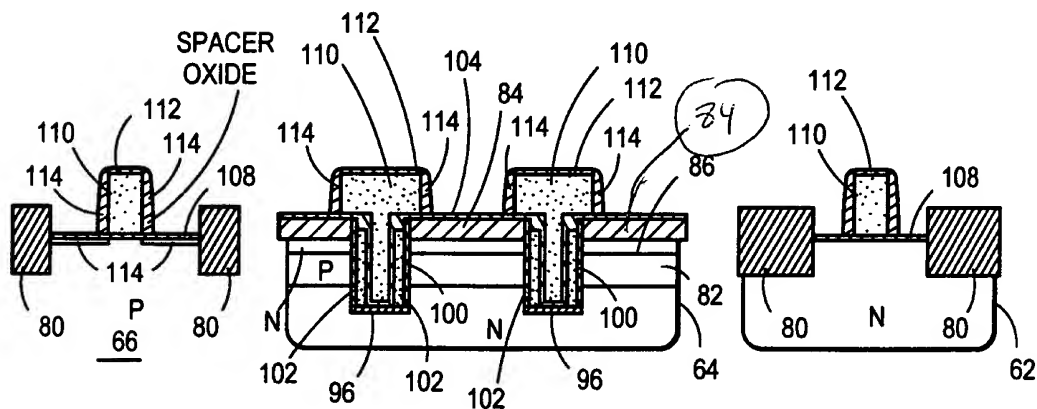
NMOS

110   112
108
114
P
80   66   80

FIG. 25A

112   EEPROM CELL
110
OXIDE   104   84   110   112
POLY2   CWO   86
P
N   100   100   82
102   96   102   102   96   64

FIG. 25B

PMOS

112   GATE
110   OXIDE
108
80   N   80   62

FIG. 25C

SPACER
OXIDE
110   112
110   114
114   108
114
P
80   66   80

FIG. 26A

112
110   110
114   112
84   114   84
114   86
P
N   100   100   82
102   96   102   96   64

FIG. 26B

112
110
108
80   N   80   62

FIG. 26C

108   116
114
P
80   66   80

FIG. 27A

113
112
110   104   110   113
114   84   118   112
114   114
84   120   86
P
N   100   100   82
102   96   102   102   96   102   64

FIG. 27B

116
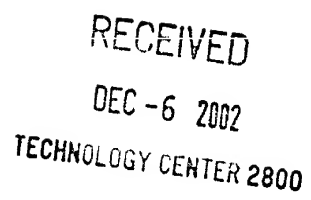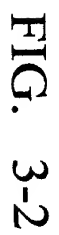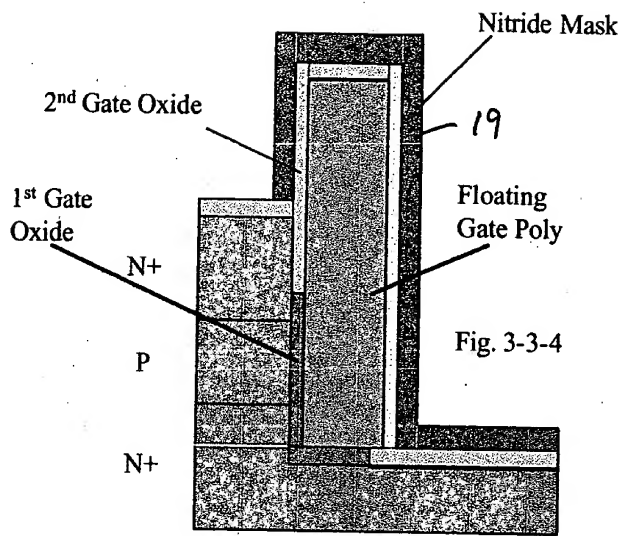80   N   80   62

FIG. 27C
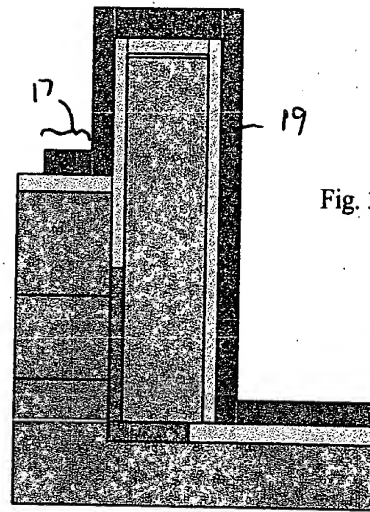
FIG. 3

6-2
(YELLOW)

1.0 Micron
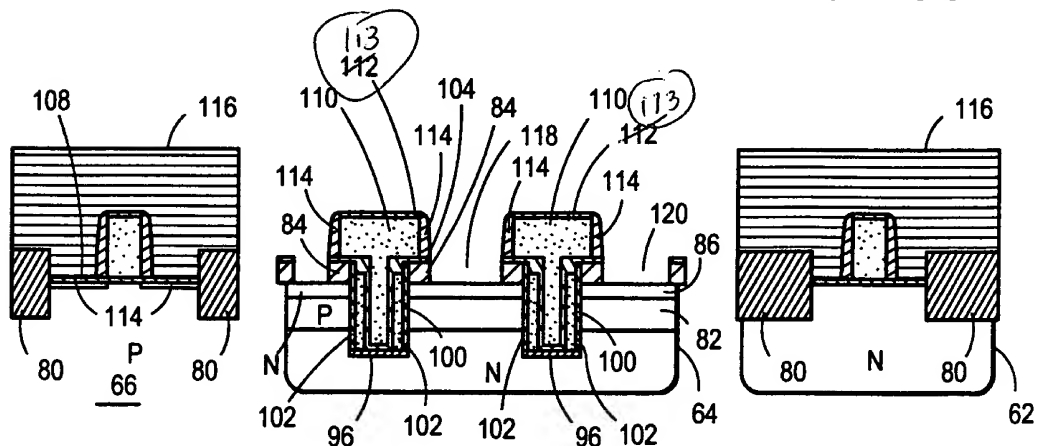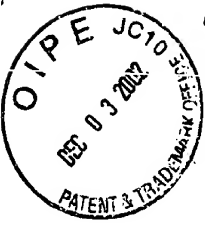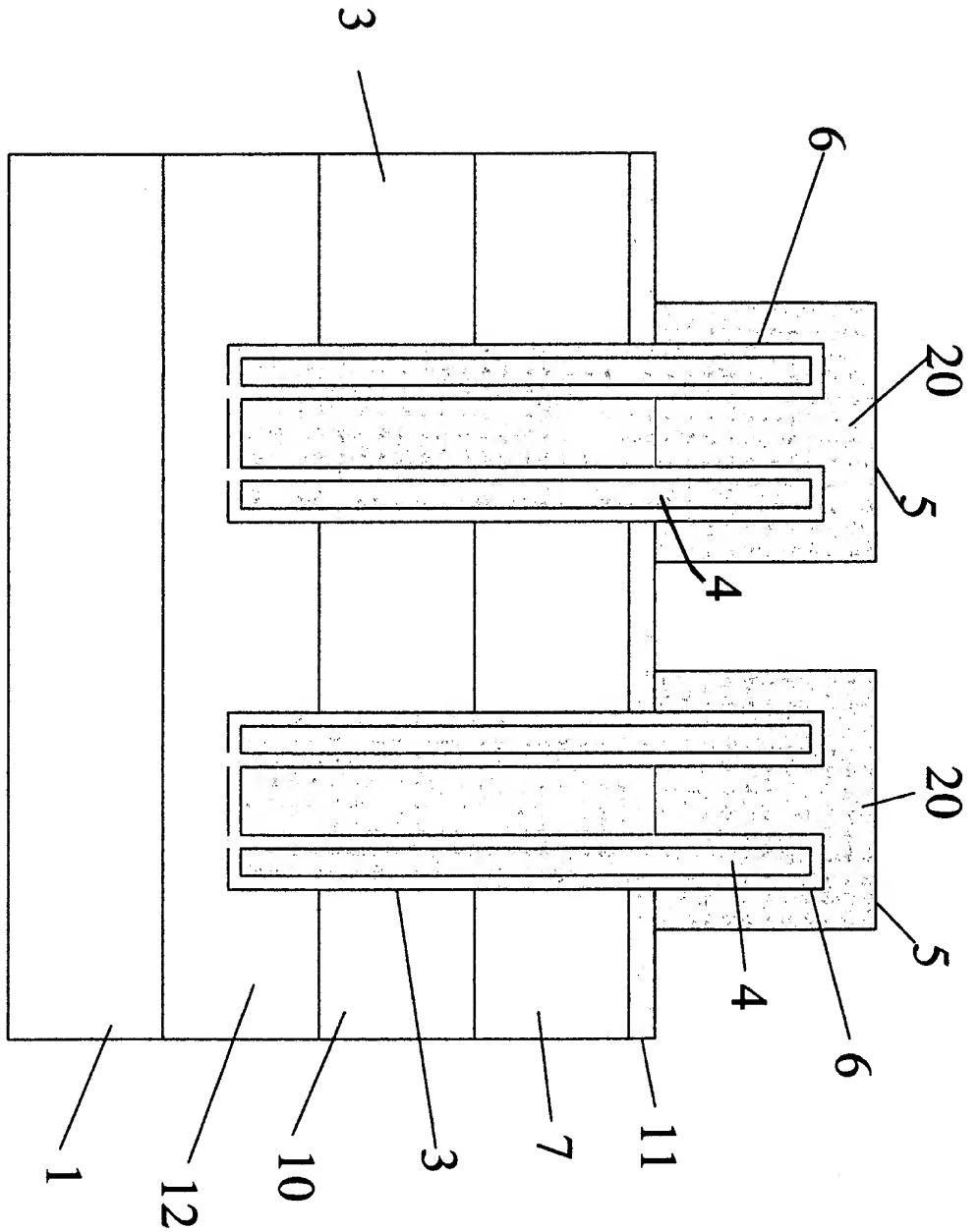
Area 6-1 = C1
Area 6-2=C2
Of Equation (1)
Below line 40
Of Yoshida 3

6-1
(GREEN)

20

5

4

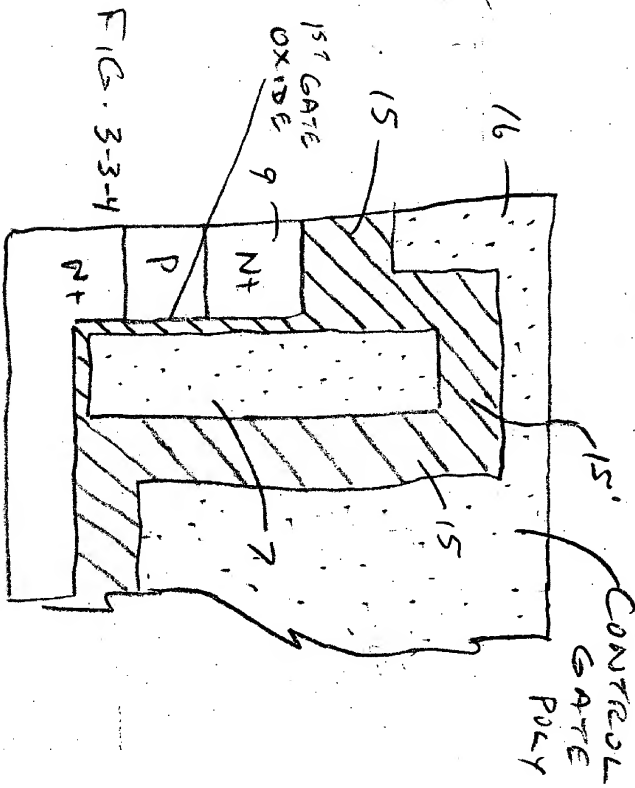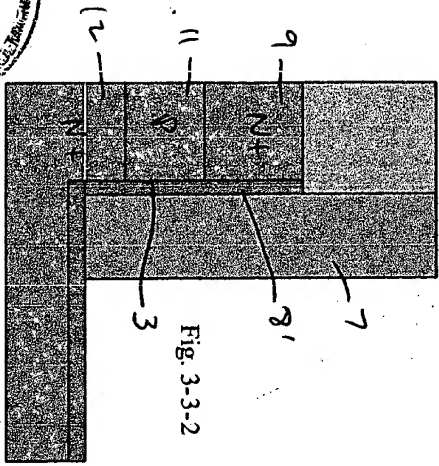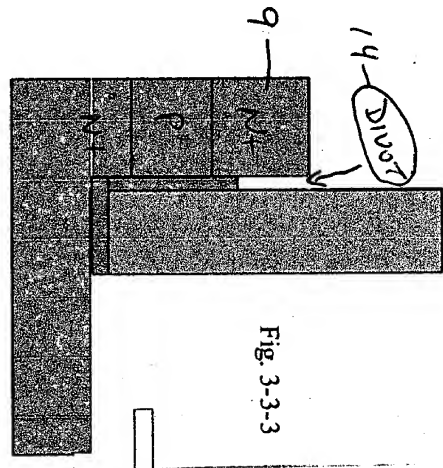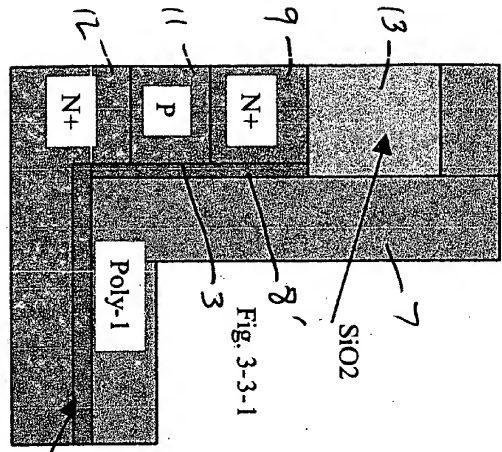6-2

20

5

4

6

11

7

3

10

12

1

FIG. 3-2

2nd Gate Oxide

Nitride Mask

19

1st Gate Oxide

N+

P

N+

Floating Gate Poly

Fig. 3-3-4

EXACT ALIGNMENT

17

19

Fig. 3-3-5

TYPICAL
MYS-ALIGNMENT
MISALIGNMENT
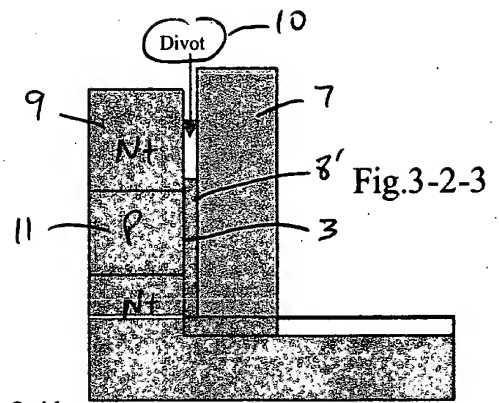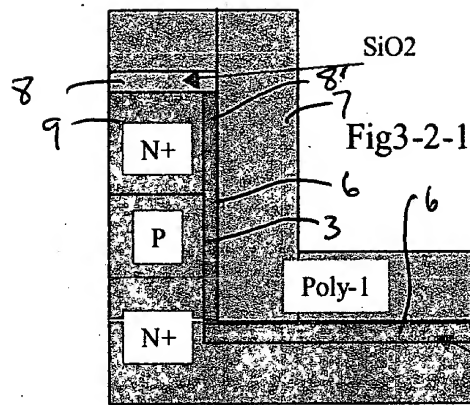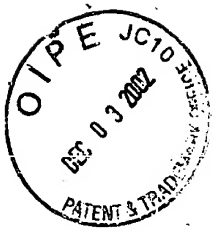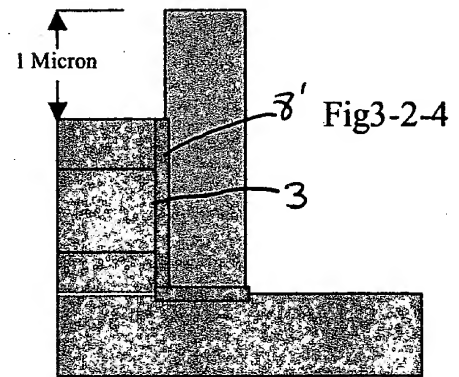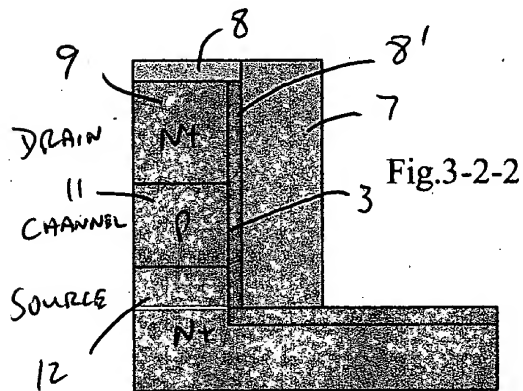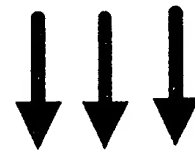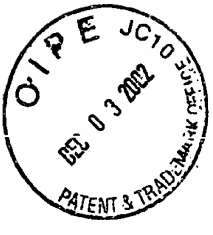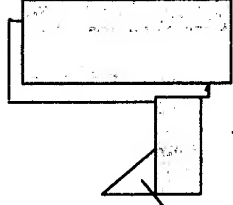
(12

(11

9

N+

P

N+

3

9'

7

Fig. 3-3-2

(12

(11

9

(13

N+

P

N+

SiO2

Poly-1

3

9'

7

Fig. 3-3-1

Gate Oxide

9

14 DIVOT

N+

P

N+

Fig 3-3-3

FIG. 3-3-4

1ST GATE OXIDE

9

15

16

N+

P

N+

7

15

15'

CONTROL GATE POLY

SiO2

8

8'

9

7

N+

Fig3-2-1

6

P

3

N+

6

Poly-1

Gate Oxide

Divot

10

9

7

N+

8'

Fig.3-2-3

11

P

3

N+

Not Possible

9

8

DRAIN

8'

N+

7

11

3

CHANNEL

P

Fig.3-2-2

SOURCE

N+

12

1 Micron

8'

Fig3-2-4

3

Actual Structure

Actual Structure

Thermally Grown
Field Oxide

Thermally Grown
Field Oxide

21

15

N+

9

7
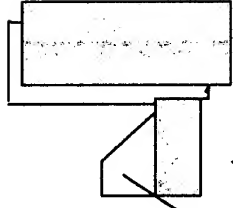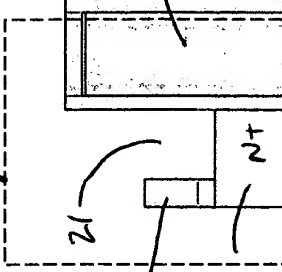
Fig.3-3-9

Ideal Structure

21

15

N+

9

7

Fig.3-3-8

Ideal Structure

Actual Structure

Actual Structure

Thermally Grown
Field Oxide

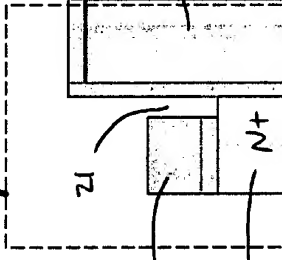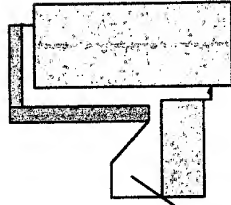Thermally Grown
Field Oxide

CONTROL GATE POLY

16

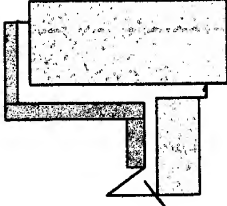19

OVER LAP 17

17

15
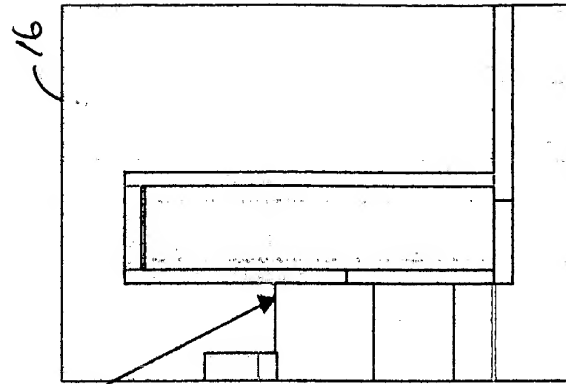
15
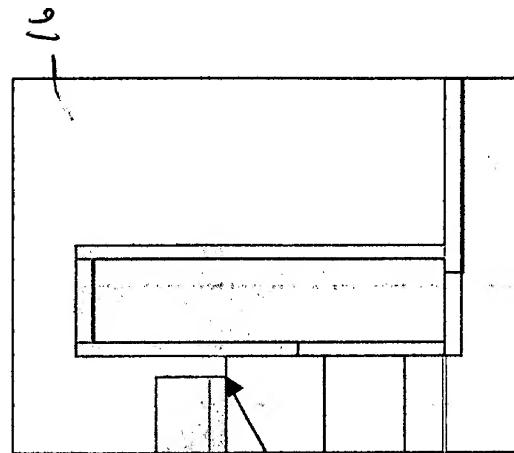
9

15''
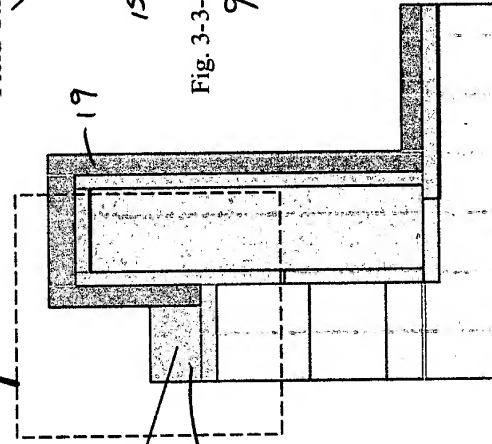
Fig. 3-3-7

Fig. 3-3-6
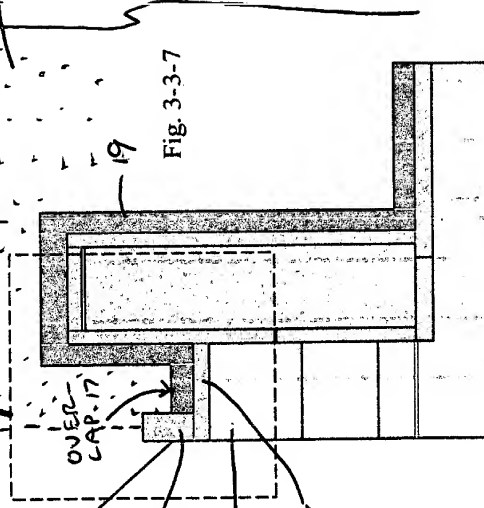
Ideal Structure

Ideal Structure

Shorts

Fig.3-3-11

16

Fig.3-3-10

16

CONTROL GATE

Shorts